REMARKS

Claims 1-13 were examined and reported in the Office Action. Claims 1, 2, 4 and 10 are rejected. Claim 10 is canceled. Claims 1-9 and 11-13 are amended. Claims 1-9 and 11-13 remain.

Applicant requests reconsideration of the application in view of the following remarks.

I. 35 U.S.C. § 102

A. It is asserted in the Office Action that claims 1, 4, and 10 are rejected under 35 U.S.C. § 102(b), as being anticipated by *New Identification based weighted H∞ norm approximation scheme and its applications to controller reduction*, D. Kavaranoglu et al, ("Kavaranoglu."). Applicant respectfully traverses the aforementioned rejection for the following reasons.

According to MPEP §2131, "'[a] claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.' (Verdegaal Bros. v. Union Oil Co. of California, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987)). 'The identical invention must be shown in as complete detail as is contained in the ... claim.' (Richardson v. Suzuki Motor Co., 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989)). The elements must be arranged as required by the claim, but this is not an ipsissimis verbis test, *i.e.*, identity of terminology is not required. (In re Bond, 910 F.2d 831, 15 USPQ2d 1566 (Fed. Cir. 1990))."

Applicant's amended claim 1 contains the limitations of "[a]n apparatus comprising: a design device for designing a controller in accordance with H infinity (H ∞) control logic, the design device employing generalized plants having control object models for manipulated variables, the device including: storage means for storing said generalized plants; parameter calculating means having: setting means for setting a transient response characteristic of a closed loop system consisting of a control object model and said controller; and frequency sensitivity weight calculation means for calculating the frequency sensitivity weight for determining a set value followup

characteristic of said closed loop system in accordance with the transient response characteristic of said closed loop system; and controller calculation means for deriving said controller by applying said frequency sensitivity weight to said generalized plants stored in said storage means."

Kavaranoglu discloses variable weight and a frequency response determining means (see Kavaranoglu, pages 62-63). The technique disclosed in Kavaranoglu aims to make a high-order controller that is obtained by control system design theory by H_∞, etc., and a low-order controller. The Kavaranoglu technique performs an optimization calculation to derive a low-order controller, by using an H_∞ norm concerning the difference of the closed-loop control performance by a high-order and low-order controller as an evaluation index, and identifies this H_∞ norm from collection data. The weighting function introduced by Kavaranoglu is only the weight applied to the difference of the closed-loop control performance to decide the evaluation index for a low-order.

Distinguishable, Applicant's amended claim 1 provides the means for changing from the control characteristic expression in the time response, which the technician of a process control system has become accustomed to and familiar with, to the frequency response system that the H infinity control theory deals with. Therefore, Applicant's claimed invention provides an action and an effect quite different from Kavaranoglu. Thus, Kavaranoglu does not teach, disclose or suggest "storage means for storing said generalized plants; parameter calculating means having: setting means for setting a transient response characteristic of a closed loop system consisting of a control object model and said controller; and frequency sensitivity weight calculation means for calculating the frequency sensitivity weight for determining a set value followup characteristic of said closed loop system in accordance with the transient response characteristic of said closed loop system; and controller calculation means for deriving said controller by applying said frequency sensitivity weight to said generalized plants stored in said storage means."

Additionally, Applicant's amended claim 4 provides the means for weighting taking the balance on the design of each control variable into consideration. This is not taught, suggested or disclosed by Kavaranoglu.

Therefore, since Kavaranoglu does not disclose, teach or suggest all of Applicant's amended claim 1 limitations, Applicant respectfully asserts that a *prima facie* rejection under 35 U.S.C. § 102(b) has not been adequately set forth relative to Kavaranoglu. Thus, Applicant's amended claim 1 is not anticipated by Kavaranoglu. Additionally, the claim that directly depends on claim 1, namely claim 4 (claim 10 being canceled), is also not anticipated by Kavaranoglu for the same reason.

Accordingly, withdrawal of the 35 U.S.C. § 102(b) rejections for claim 1, 4 and 10 are respectfully requested.

B. It is asserted in the Office Action that claims 1, 2, 4, and 10 are rejected under 35 U.S.C. § 102(b), as being anticipated by *A Mixed optimization approach to multiobjective computeraided control system design*, J. F. Whidborne et al, ("Whidborne"). Applicant respectfully traverses the aforementioned rejection for the following reasons.

It is asserted in the Office Action that Whidborne discloses variable weight adjusting means (see Whidborne, Fig. 9, page 314), frequency response calculation means (see Whidborne, Fig. 4, page 313), and a scaling matrix (see Whidborne, page 311). Fig. 9 of Whidborne, however, merely provides a graphical user interface (GUI) for a user to define the weighting function. Therefore, way the weighting function is defined in Whidborne is completely different from Applicant's setting means for setting the transient response characteristic ("setting means for setting a transient response characteristic of a closed loop system consisting of a control object model and said controller."

Fig. 4 of Whidborne merely provides a GUI for encouraging the user to make a judgment by presenting information, such as the frequency graph and the frequency bandwidth etc., of a closed-loop response. Therefore, Whidborne is completely different from Applicant's frequency sensitivity weight calculation means ("frequency sensitivity weight calculation means for calculating the frequency sensitivity weight for

determining a set value followup characteristic of said closed loop system in accordance with the transient response characteristic of said closed loop system").

Although it is asserted in the Office Action that the method of normalization of normalized coprime factorization (that is in line 19 of Whidborne) corresponds to the "scaling matrix calculation means" of Applicant's amended claims 2 and 4, Whidborne does not teach, disclose or suggest the concept of the scaling aiming at the adjustment of the model error between many variables, about normalized coprime factorization. Therefore, an ordinary person skilled in the art would not interpret both as the same thing.

Therefore, since Whidborne does not disclose, teach or suggest all of Applicant's amended claim 1 limitations, Applicant respectfully asserts that a *prima facie* rejection under 35 U.S.C. § 102(b) has not been adequately set forth relative to Whidborne. Thus, Applicant's amended claim 1 is not anticipated by Whidborne. Additionally, the claims that directly depend on claim 1, namely claims 2 and 4 (claim 10 being canceled), are also not anticipated by Whidborne for the same reason.

Accordingly, withdrawal of the 35 U.S.C. § 102(b) rejections for claim 1, 2, 4 and 10 are respectfully requested.

C. It is asserted in the Office Action that claims 1, 2, 4, and 10 are rejected under 35 U.S.C. § 102(b), as being anticipated by *Uncertainty Weight Selection for H-Infinity and Mu-Control Methods*, P. Lunstrom et al, ("Lunstrom"). Applicant respectfully traverses the aforementioned rejection for the following reasons.

It is asserted in the Office Action that Lunstrom discloses a variable weight and a matrix (see Lunstrom, page 1537). The weight and matrix disclosed in Lunstrom are a weight and matrix that corresponds to the uncertainty of a model when the model is expressed by an LFT-form. Therefore, the weight and matrix disclosed by Lunstrom is completely different from the "frequency sensitivity weight calculation means" in amended claim 1, and the "scaling matrix calculation means" of amended claims 2 and 4. That is, Lunstrom does not teach, disclose or suggest "frequency sensitivity weight calculation means for calculating the frequency sensitivity weight for determining a set

value followup characteristic of said closed loop system in accordance with the transient response characteristic of said closed loop system."

Therefore, since Lunstrom does not disclose, teach or suggest all of Applicant's amended claim 1 limitations, Applicant respectfully asserts that a *prima facie* rejection under 35 U.S.C. § 102(b) has not been adequately set forth relative to Lunstrom. Thus, Applicant's amended claim 1 is not anticipated by Lunstrom. Additionally, the claims that directly depend on claim 1, namely claims 2 and 4 (claim 10 being canceled), are also not anticipated by Lunstrom for the same reason.

Accordingly, withdrawal of the 35 U.S.C. § 102(b) rejections for claim 1, 2, 4 and 10 are respectfully requested.

D. It is asserted in the Office Action that claim 1 is rejected under 35 U.S.C. § 102(b), as being anticipated by *Hartly SIR number H1410* ("Hartly"). Applicant respectfully traverses the aforementioned rejection for the following reasons.

It is asserted in the Office Action that Hartly discloses a design device, parameter calculation means, and controller calculation means. Hartly, however, does not teach, disclose or suggest "setting means for setting a transient response characteristic of a closed loop system consisting of a control object model and said controller; and frequency sensitivity weight calculation means for calculating the frequency sensitivity weight for determining a set value followup characteristic of said closed loop system in accordance with the transient response characteristic of said closed loop system; and controller calculation means for deriving said controller by applying said frequency sensitivity weight to said generalized plants stored in said storage means."

Therefore, since Hartly does not disclose, teach or suggest all of Applicant's amended claim 1 limitations, Applicant respectfully asserts that a *prima facie* rejection under 35 U.S.C. § 102(b) has not been adequately set forth relative to Hartly. Thus, Applicant's amended claim 1 is not anticipated by Hartly. Additionally, the claims that directly depend on claim 1, namely claims 2 and 4 (claim 10 being canceled), are also not anticipated by Hartly for the same reason.

Accordingly, withdrawal of the 35 U.S.C. § 102(b) rejections for claim 1 is respectfully requested.

E. It is asserted in the Office Action that claims 1, 2, 4 and 10 are rejected under 35 U.S.C. § 102(a), as being anticipated by U. S. Patent No. 6,230,062 issued to Shah ("Shah"). Applicant respectfully traverses the aforementioned rejection for the following reasons.

It is asserted in the Office Action that Hartly Shah weighting (see Shah, Col. 11, lines 45-55) and a matrix (see Shah, Col. 11, lines 20-45). Shah, however, discloses weighting that appears as a weighting filter that is applied to take the adjustment of the measurement standard of residuals of each model and model variations. Therefore, the weighting disclosed by Shah completely different from the "frequency sensitivity weight calculation means" in amended claim 1. That is, Shah does not teach, disclose or suggest "frequency sensitivity weight calculation means for calculating the frequency sensitivity weight for determining a set value followup characteristic of said closed loop system in accordance with the transient response characteristic of said closed loop system."

It is also asserted in the Office Action that Shah discloses a matrix. The matrix disclosed in Shah, however, is a matrix corresponding to a parameter when a model is expressed by a state-space innovations form. Therefore, the matrix disclosed in Shah is completely different from Applicant's "scaling matrix calculation means" as claimed in claims 2 and 4.

Therefore, since Shah does not disclose, teach or suggest all of Applicant's amended claim 1 limitations, Applicant respectfully asserts that a *prima facie* rejection under 35 U.S.C. § 102(a) has not been adequately set forth relative to Shah. Thus, Applicant's amended claim 1 is not anticipated by Shah. Additionally, the claims that directly depend on claim 1, namely claims 2 and 4 (claim 10 being canceled), are also not anticipated by Shah for the same reason.

Accordingly, withdrawal of the 35 U.S.C. § 102(a) rejections for claim 1, 2, 4 and 10 are respectfully requested.

II. **Allowable Subject Matter**

Applicant notes with appreciation the Examiner's assertion that claims 3, 5-9, and 11-13 are objected to as being dependent upon a rejected base claims, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Applicant respectfully asserts that claims 1-9 and 11-13, as they now stand, are allowable for the reasons given above.

CONCLUSION

In view of the foregoing, it is submitted that claims 1-9 and 11-13 patentably define the subject invention over the cited references of record, and are in condition for allowance and such action is earnestly solicited at the earliest possible date. If the Examiner believes a telephone conference would be useful in moving the case forward, he is encouraged to contact the undersigned at (310) 207-3800.

If necessary, the Commissioner is hereby authorized in this, concurrent and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2666 for any additional fees required under 37 C.F.R. §§1.16 or 1.17, particularly, extension of time fees.

Respectfully submitted,
BLAKELY, SOKOLOFF, TAYLOR, & ZAFMAN LLP

Dated: June 21, 2005

By: _____
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CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service as First Class Mail with sufficient postage in an envelope addressed to: Mail Stop Amendment, Commissioner for Patents, P. O. Box 1450, Alexandria, Virginia 22313-1450 on June 21, 2005.

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Jean Svoboda